Sustainability-oriented transformative learning and teaching in higher education: eight propositions on challenges and approaches

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Abstract: To contribute to sustainability transformations, learning and teaching at higher education institutions must become trans-formative. A group of experts met for a one-day workshop organized by the Swiss Academic Society for Environmental Research and Ecology (saguf) in December 2019 to discuss the challenges of sustainability-oriented transformative learning and teaching in higher education, and to explore approaches that can be used to meet these challenges. This paper presents key findings from the discussion, set up in eight pro-positions.

Sustainability-Oriented Transformative Learning and Teaching in Higher Education:

Eight Propositions on Challenges and Approaches

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To contribute to sustainability transformations, learning and teaching at higher education institutions must become transformative. A group of experts met for a one-day workshop organized by the Swiss Academic Society for Environmental Research and Ecology (saguf) in December 2019 to discuss the challenges of sustainability-oriented transformative learning and teaching in higher education, and to explore approaches that can be used to meet these challenges. This paper presents key findings from the discussion, set up in eight pro-positions.

Introduction

The transformative turn in the sustainability debate

In recent years, "transformation" has become a key concept in the scientific analysis and the shaping of social change processes. In particular, sustainability issues such as climate change, biodiversity loss, and food security are increasingly framed as social-ecological transformations (WBGU, 2011; Brand, 2017). This "transformative turn" in sustainability (Dentoni et al, 2017) reflects the insight that gradual changes in the system can no longer be considered appropriate for addressing pressing social-ecological problems. Rather, far-reaching, cross-sectoral and cross-level changes of the system itself are required: we need a complete restructuring of economic production and consumption patterns, and a re-orientation of the individual and collective values and mindsets that produce them. While the call for transformation extends to all social subsystems, science is assigned a central role in shaping social-ecological transformations. To this end, science should itself become transformative in both research and teaching (WBGU, 2011; Schneidewind & Singer-Brodowski, 2014). Transformative research, on the one hand, involves generating knowledge about social-ecological transformations and sometimes also the (co)design of real-world transformations within novel research settings (cf. Grunwald, 2015; Jahn et al, 2015; Kläy et al, 2015; Ejderyan et al, 2019). Transformative learning and teaching, on the other hand, deals with the development of transformation-oriented competencies and capabilities within new transformative teaching-and-learning arrangements at higher education institutions. "To be transformative, higher education must transform itself" (COPERNICUS Alliance, 2012).

Sustainability-oriented transformative learning and teaching in higher education

The relationship between sustainable development and learning and teaching at higher education institutions has been under discussion for a while under the umbrella of "Education for Sustainable Development" (ESD) (e.g. Barth 2015). In the wake of the transformative turn, a community has formed that is committed to investigating and conceptualizing transformative learning and teaching (TLT) oriented towards sustainability. ESD argues that a simple expansion of existing curricula to include topics related to social-ecological transformation such as climate change will not suffice to trigger transformative change for sustainability. Rather, what is needed is a fundamental restructuring of the basic

Discussion paper: Eight propositions on transformative learning and teaching in higher education
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saguf
schweizerische akademische gesellschaft für umweltforschung und ökologie
société académique suisse pour la recherche environnementale et l'écologie
swiss academic society for environmental research and ecology

Sustainability-oriented transformative learning and teaching involves fundamental changes in individual meaning perspectives. Collage: Basil Bornemann

orientation, approaches and practices that currently characterize higher education (Sterling & Thomas, 2006). Sustainability-oriented TLT aims in particular to trigger critical reflection on and a profound shift of individual meaning perspectives (Mezirow, 1997) – values, knowledge, and norms that orient our thoughts, emotions, and actions – guided by the (integrative) goals, worldview and action strategies promoted by the sustainability idea (Jacobs, 1999; Bornemann, 2014). Sustainability-oriented TLT thus implies "a shift of consciousness that dramatically and permanently alters our way of being in the world. Such a shift involves our understanding of ourselves and our self-location: our relationships with other humans and with the natural world" (Morrell & O'Connor 2002, p. xvii).

Challenges and approaches

Designing and implementing sustainability-oriented TLT in higher education is very challenging (e.g. Sterling, 2011; Kläy et al, 2015; Balsiger et al, 2017; Rieckmann, 2018; Förster et al, 2019; Wilhelm et al, 2019). For example, how do we address the strong normative implications of sustainable development in the context of objectivity-focused, science-based teaching? And how do we promote sustainability-oriented competences *(Gestaltungskompetenz)* within a higher education system that is geared towards the acquisition of disciplinary expertise (de Haan, 2008; Wiek et al, 2011, 2015)? These challenges are addressed by a number of approaches to and experiences with TLT in higher education and adult education, for example in the area of transdisciplinary teaching (e.g. Stauffacher et al, 2006; Rieckmann, 2018; Fry & Thieme, 2019; Müller, 2020), in experience-based learning and teaching in experiential and nature-based education (BAFU, 2012; Scheidegger, 2018; Jucker, 2020) and in "embodied education" (e.g. Keleman, 1987; Schlattner, 1997; Leigh, 2019).

Objectives

The present discussion paper aims to contribute to the debate by addressing some of the challenges of sustainability-oriented TLT in higher education and discussing approaches to dealing with them. To this end, we present eight propositions that emerged from the 2nd saguf Dialogue (see Box 1&2), which was held in December 2019 and drew largely on several years of conceptual work and "reflective practitioning" of the saguf Education for Sustainable Development (ESD) Working Group. The paper addresses researchers, lecturers, and teaching professionals at university centres offering pedagogic and didactic support. The paper has two purposes. First, it aims to stimulate a reflection on and a sharpening of sustainability-oriented TLT practices and approaches. Second, it is a contribution by saguf to the scientific debate on sustainability-oriented TLT in higher education, for example in the context of the Higher Education Summit 2020 (#HES2020) organized by the COPERNICUS Alliance, saguf, td-net of the Swiss Academies, and the Universities of Bern and Lausanne, which deals with the question "How can we assure quality and transformative learning for sustainable development?" (www.higher-education-summit-2020.com).

Box 1. The format of saguf Dialogues

Within saguf, researchers and practitioners have been dealing with questions of appropriate knowledge generation and transfer in the context of sustainable development for many years (Kruse et al, 2015). Their insights have led the saguf Board to rethink its own formats of knowledge exchange. The Board subsequently developed the saguf Dialogue format to provide a protected space for open and transformation-oriented reflections between different social actors and scientists. A diverse set of actors are invited for a full day of discussion on a previously outlined but open topic that spans disciplinary boundaries. The aim is to exchange relevant perspectives and knowledge, to explore and sketch innovative approaches beyond institutional ties, and to reflect on the possibilities and limits of their realization in practice. The central principles of the saguf Dialogue format are a plurality of perspectives, an open and inclusive moderation, and the confidentiality of positions articulated by the individual participants.

Propositions offered for debate

Proposition 1. Higher education has fundamental potential for TLT.

Higher education that is committed to humanistic ideals has always been driven by the aim of continuously reflecting o n a nd clarifying the autonomous self and its relationship to the world. Education understood in this way holds potential for TLT. As argued by a higher education teaching professional during the 2019 saguf Dialogue, "good teaching is always transformative." However, university teaching today has largely departed from humanistic ideals – one need only think of the widespread emphasis on discipline-specific and methodological competences in current curricula, at the expense of interdisciplinary, personal, and social competences; so university teaching has lost its transformative potential (Corcoran & Wals, 2004). If one seeks to (re)discover and expand the transformative potential of higher education, there is a pool of existing concepts with a transformative orientation from which to draw (Dewey, 1903; Piaget, 1931; Klafki, 1996). There are also many newer approaches and models of learning and teaching that pursue a decidedly transformative objective (Mezirow, 1997; Koller 2012) and have in part already been operationalized for higher education and sustainability contexts (e.g. Singer-Bro-dowski, 2016a). The theoretical and practical relationship between classical and newer approaches and practices of TLT in the context of higher education require further exploration (see Proposition 8).

Proposition 2. Sustainability requires value-oriented TLT.

In view of the transformation required by sustainable development, the transformative potential of both classical and newer transformative learning approaches is necessary but not sufficient for sustainability-oriented TLT at higher education institutions. TLT as such remains incomplete with regard to the strong normative orientation of the idea of sustainability. TLT that aims to contribute to sustainable development needs to focus on the transformation of individual meaning perspectives in such ways that both sustainability's collectively oriented systems perspective and its complex normativity, combining intra- and intergenerational justice with the recognition of ecological limits (Christen & Schmidt, 2011), become relevant points of reference for considerations of, debates about, and actual efforts towards individual transformations (Singer-Brodowski, 2016b). To account for sustainability aspects such as the global scope of problems, TLT in higher education must be geared to acknowledging relations between local and global phenomena (Piaget, 1972). Even more fundamentally, sustainability-oriented TLT must position individual learning processes in relation to the (universal) social values of intra- and intergenerational justice associated with the sustainability concept (see Proposition 3).

Proposition 3. Sustainability-oriented TLT in higher education requires a reflexive examination of normativity.

Taking into account the strong normative implications of sustainability-oriented TLT when designing and implementing teaching-and-learning arrangements at higher education institutions raises difficult questions. What norms and how much normativity are appropriate – especially in the context of a higher education system that holds up objective facts against values? Of course, these questions always arise in the context of higher education, since it is embedded in diverging social and economic interests and power relations. Due to the decidedly normative claims asso-ciated with the concept of sustainability, however, questions regarding the appropriate handling of normativity in the context of sustainability-oriented university teaching arise to a particular degree and on several levels. First, an explicit and dialogical examination of normativity that goes beyond simply conveying the value orientations associated with sustainability seems necessary. To be transformative in terms of sustainability, higher education needs to reconsider existing individual and societal value orientations in light of normative principles of sustainable development such as inter- and intragenerational justice. This involves identifying often invisible, ubiquitous norms that are inscribed in social institutions as well as in practices such as the production of scientific knowledge itself (Schneider et al 2019), and that partially contradict the values of sustainable development. On the other hand, a reflexive examination of normativity requires an ongoing dialogue-based interpretation of the universal values of sustainability in and for concrete learning and action contexts (Lange, 2020). Finally, it calls for a transformation of existing normative orientations, taking into account context-related, collectively interpreted values of sustainability.

Sustainability-oriented transformative learning and teaching calls for a reconsideration of existing normative orientations, taking into account context-related values of sustainability. Photo: Ruth Förster

A reflective navigation of liminality – the "intermediate state" in which established paradigms, values, and norms are called into question while new orientations are not yet tangible – is of great importance. Photo: Ruth Förster

Proposition 4. Emotions require targeted attention in sustainability-oriented TLT in higher education.

Emotions generally play a central role in TLT (Förster et al, 2019). In the case of sustainability-oriented TLT, it is particularly important to take them into account in at least two ways, because of the strong normative implications of sustainability. First, they serve as a "sensorium" to detect values and moral considerations of learners relevant to (non-)sustainability, exposing and making them accessible for reflection. As "sources of wisdom" (Roeser, 2011, p. 198) emotions contribute to a clarification and reflection of the normative basis of sustainability-oriented social transformations. Second, and in addition to serving as indicators, emotions are also potential "levers" for sustainability-oriented TLT. Emotions make the values and norms underlying our thinking, feeling and acting become visible and accessible for critical reflection (Bornemann, 2018). For example, the moral significance of sustainability becomes clear when an emotional connection is established, through compassion and responsibility, with the people who have to bear the consequences of unsustainable development (Roeser, 2011, p. 199). Emotions pave the way, as it were, for fundamental normative and cognitive changes – but they can also impede them when, for example, they become overwhelming and lead to distortions and blockages (Förster et al, 2019; see also Propositions 5 and 6).

Proposition 5. Normativity and emotionality constitute challenges for science-based university teaching.

Taking a normative orientation and including emotions means stepping away from the ideal of objective science that is widely held and practiced in higher education. One consequence is that sustainability-oriented transformative university teaching is met with skepticism, for example by university lecturers or teaching professionals. Representatives of sustainability-oriented TLT can counteract this skepticism by referring to the intrinsic, but often implicit normativity and emotionality of established forms of research and teaching, and by demanding an open, dialogical approach to values and emotions. Here, teaching in higher education becomes a critical authority that works towards problematizing existing forms of learning and teaching. In the context of university pedagogics, various approaches that are geared towards these forms of self-reflection have already been formulated (Arnold, 2012), but at the level of concrete teaching practices innovative teaching-and-learning arrangements to support corresponding processes have yet to be established.

Proposition 6. Safe teaching-and-learning arrangements are needed to facilitate TLT processes.

The fundamental cognitive and normative changes associated with TLT can and should result in altered feelings and actions. Due to the importance of emotions in transformation, this shift has the potential to trigger insecurities or even crisis-like feelings in learners, for example, with regard to deeply held beliefs about what we do and why and how we do it. It is therefore crucial to foster individual resilience and a reflective handling of liminality – the "intermediate state" in which established paradigms, values, and norms are called into question while new orientations are not yet tangible – as this state may be overwhelming. This entails that teachers – or rather coaches – support the learner in the process of navigating the space between the emotional, cognitive or normative comfort zone and a complete overload that can lead to fear and clinging to previous meaning perspectives (Förster et al, 2019). The fundamental responsibility of teachers in crisis-sensitive transformative learning is to create a "holding space/safe space." This approach, along with the transparent communication of learning goals and evaluation criteria and the ongoing and participatory evaluation of teaching-and-learning arrangements, allows for openness, respect and trust between teachers and students, and encourages all involved to try out new things (e.g., value orientation, action). The transparent communication of learning goals and evaluation criteria and the ongoing and participatory evaluation of teaching-and-learning arrangements also contributes to the creation of a holding space/safe space.

Proposition 7. It is necessary to professionalize sustainability-oriented TLT and clarify relations with established university pedagogy.

As sustainability-oriented TLT must take into account values and emotions, implementing it in higher education often conflicts with established self-conceptions and practices of professionalized university teaching. To promote a transparent exchange with established pedagogic support centers and, where necessary and possible, to productively turn tensions into synergies, sustainability-oriented TLT in higher education needs to professionalize itself. The aim should be, then to identify competences that support sustainability-oriented learning and design processes, including how to deal with the associated crisis-ridden challenges. In addition, it is also necessary to clarify what self-conceptions, role models and responsibilities teachers and learners in transformative arrangements have. Finally, approaches and criteria for the evaluation of transformative teaching-and-learning arrangements could be defined. A resulting profile defining competences, roles and evaluation criteria could lead into a kind of Code of Conduct for Sustainability-Oriented Teaching Professionals. On this basis, further synergies between sustainability-oriented TLT and established approaches and practices of learning and teaching at higher education institutions could be developed.

The fundamental cognitive and normative changes associated with TLT can and should result in altered feelings and actions, e.g. using the real-world lab approach.
Photo: Anne Zimmermann

Proposition 8. Further research on sustainability-oriented TLT in higher education is needed.

Finally, in order to sharpen the profile and identify successful practices of sustainability-oriented TLT at higher education institutions, more targeted research is needed. In addition to further clarifying the theoretical and ideological relations between ESD, established higher education pedagogy, and TLT approaches that could contribute to a profiling of sustainability-oriented TLT in higher education, future research should focus on an analysis of the conditions and practices of successful realizations of transformative learning and teaching towards sustainability in concrete teaching-and-learning arrangements. What approaches work and under what conditions? How can sustainability-oriented TLT be combined with established (transformative) learning approaches and integrated into subject-related university teaching? One promising approach is targeted, "in vivo research" in real laboratories (Barth, 2019; Wals, 2020), the findings of which can be incorporated into pedagogic and didactic training and lecturers' existing practices. This also involves determining how sustainability-oriented TLT can be mainstreamed in university teaching, i.e., how lecturers from all possible disciplines can change their understanding of teaching in such a way that it includes elements of sustainability-oriented TLT. Last but not least, this research should also investigate whether sustainability-oriented TLT has (transformative) impacts on social-ecological transformations.

The participants of the saguf Dialogue 2019 "Transformative Learning Meets Higher Education Pedagogics".
Photo: Manuela Di Giulio

Box 2. The saguf Dialogue 2019 "Transformative Learning Meets Higher Education Pedagogics"

On 18 December 2019, 22 experts from Switzerland and Germany took part in the saguf Dialogue "Transformative Learning Meets Higher Education Pedagogics" at the University of Zurich. The discussion aspired to be an experience-based, and at the same time theoretically-guided, reflection on the prerequisites and conditions of transformative learning and teaching in higher education, as well as on the potentials and limitations of implementing the concepts and practices that characterize TLT. Using concrete examples of approaches to transformative learning and teaching developed in different contexts – with and without reference to sustainability – the central challenges and implications for sustainability-oriented TLT in higher education were discussed and reflected upon. Saguf thanks all of the participants for their productive contributions:

- Prof. Dr. Matthias Barth, Leuphana University Lüneburg
- Prof. Dr. Saskia Eschenbacher, Akkon University Berlin
- Dr. Patricia Fry, WISSENSMANAGEMENT UMWELT GMBH, Lecturer ETH Zurich, University of Bern
- Lydia Rufer, University Didactics & Teaching Development, University of Bern
- Dr. Sarah Shephard, Teaching Development and Technology, ETH Zurich
- Dr. Mandy Singer-Brodowski, UNESCO World ESD Action Programme, Institute Futur, Free University Berlin
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- *Dr. Basil Bornemann, Sustainability Research Group, University of Basel
- Dr. Petra Biberhofer, Participatory Academy of Science, University of Zurich/ETH Zurich
- Prof. Dr. Vicente Carabias-Hütter, Sustainable Energy Systems & ZHAW Platform Smart Cities & Regions
- *Dr. Ruth Förster, dr. ruth förster training & counseling, ZH, Co-Moderation
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